1   **Figure 1**

2

3   Sequence information for five of the lactate utilising

4   strains.

5

6   **S D6 1L/1**

7   GATGAACGCTGGCGGCGTGCCTAACACTGCAAGTCGAACGAAGCACCTTACCTGATTCTTCGGATGAA

8   GGTCTGGTGACTGAGTGGCGGACGGGTGAGTAACGCGTGGGTAACCTGCCCTGTACAGGGGGATAACA

9   GTTGGAAACGGCTGCTAATACCGCATAAGCGCACGAGAGGACATCCTCTTGTGTGAAAAACTCCGGTG

10   GTACAGGATGGGCCCGCGTCTGATTAGCTGGTTGGCAGGGTAACGGCCTACCAAGGCGACGATCAGTA

11   GCCGGTCTGAGAGGATGAACGGCCACATTGGAACTGAGACACGGTCCAACTCATACGGGAGGCAGCAG

12   TGGGGAATATTGCACAATGGGGGAAACCCTGATGCAGCAACGCCGCGTGAGTGAAGAAGTATTTCGGT

13   ATGTAAAGCTCTATCAGCAGGGAAGATAATGACGGTACCTGACTAAGAAGCTCCGGCTAAATACGTGC

14   CAGCAGCCGCGGTAATACGTATGGAGCAAGCGTTATCCGGATTTACTGGGTGTAAAGGGTGCGTAGGT

15   GGCAGTGCAAGTCAGATGTGAAAGGCCGGGGCTCAACCCCGGAGCTGCATTTGAAACTGCATAGCTAG

16   AGTACAGGAGAGGCAGGCGGAATTCCTAGTGTAGCGGTGAAATGCGTAGATATTAGGAGGAACACCAG

17   TGGCGAAGGCGGCCTGCTGGACTGTTACTGACACTGAGGCACGAAAGCGTGGGGAGCAAACAGGATTA

18   GATACCCTGGTAGTCCACGCCGTAAACGATGAATACTAGGTGTCGGGGCCGTATAGGCTTCGGTGCCG

19   TCGCAAACGCAGTAAGTATTCCACCTGGG

20   GAGTACGTTCGCAAGAATGAAACTCAAAGGAATTGACGGGGACCCGCACAAGCGGTGGAGCATG

21   TGGTTTAATTCGAAGCAACGCGAAGAACCTTACCAGGTCTTGACATCCTTCTGACCACTCCGTA

22   ATGGGAGTCTTCCTTCGGGACAGAAGAGACAGGTGGTGCATGGTTGTCGTCAGCTCGTGTCGTG

23   AGATGTTGGGTTAAGTCCCGCAACGAGCGCAACCCCTATCTTCAGTAGCCAGCAGGTAAGGCTG

24   GGCACTCTGGAGAGACTGCCAGGGATAACCTGGAGGAAGGTGGGGACGACGTCAAATCATCATG

25   CCCCTTATGATCTGGGCGACACACGTGCTACAATGGCGGTCACAAAGTGAGGCGAACCTGCGAG

26   GGGGAGCAAACCACAAAAAGGCCGTCCCAGTTCGGACTGTAGTCTGCAACCCGACTACACGAAG

27   CTGGAATCGCTAGTAATCGCGAATCAGAATGTCGCGGTGAATACGTTCCCGGGTCTTGTACACA

28   CCGCCCGTCACACCATGGGAGTCGGAAATGCCCGAAGCCAGTGACCCAACCATATGGAGGGAGC

29   TGTCGAAGGTGGAGCCGGTAACTGGGGTG

30

31   **SM 6/1**

32   GATGAACGCTGGCGGCGTGCCTAACACATGCAAGTCGAACGAAGCACCTTACGAGATTCTTCGGATGA

33   TCGTTTGGTGACTGAGTGGCGGACGGGTGAGTAACGCGTGGGTAACCTGCCCTGTACAGGGGGATAAC

34   AGCTGGAAACGGCTGCTAATACCGCATAAGCGCACGAGGAGACATCTCCTAGTGTGAAAAACTCCGGT

35   GGTACAGGATGGGCCCGCGTCTGATTAGCTGGTTGGCAGGGTAACGGCCTACCAAGGCAACGATCAGT

36   AGCCGGTCTGAGAGGATGAACGGCCACATTGGAACTGAGACACGGTCCAAACTCCTACGGGAGGCAGC

37   AGTGGGGAATATTGCACAATGGGGGAAACCCTGATGCAGCAACGCCGCGTGAGTGAAGAAGTATTTCG

38   GTATGTAAAGCTCTATCAGCAGGGAAGATAATGACGGTACCTGACTAAGAAGCTCCGGCTAAATACGT

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 1    GCCAGCAGCCGCGGTAATAGATATGGAGCAAGCGTTATCCGGATTTACTGGGTGTAAAGGGTGCGTAG
 2    GTGGCAGTGCAAGTCAGATGTGAAAGGCCGGGGCTCAACCCCGGAGCTGCATTTGAAACTGCWYRGCT
 3    AGAGTACAGGAGAGGCAGGCGGAATTCCTAGTGTAGCGGTGAAATGCGTAGATATTAGGAGGAACACC
 4    AGTGGCGAAGGCGGCCTGCTGGACTGTTACTGACACTGAGGCACGAAAGCGTGGGGAGCAAACAGGAT
 5    TAGATACCCTGGTAGTCCACGCCGTAAACGATGAATACTAGGTGTCGGGGCCGTATAGGCTCCGGTGC
 6    CGCCGCTAACGCAGTAAGTATTCCACCTGGGGAGTACGTTCGCAAGAATGAAACTCAAAGGAATTGAC
 7    GGGGACCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAAGCAACGCGAAGAACCTTACCAGGTCTT
 8    GACATCCTTCTGACCGCACCTTAATCGGTGCTTTCCTTCGGGACAGAAGAGACAGGTGGTGCATGGTT
 9    GTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGCAACGAGCGCAACCCCTATCTTCAGTAGC
10    CAGCAGGTAAGGCTGGGCACTCTGGAGAGACTGCCAGGGATAACCTGGAGGAAGGTGGGGACGACGTC
11    AAATCATCATGCCCCTTATGATCTGGGCGACACACGTGCTACAATGGCGGTCACAGAGTGAGGCGAAC
12    CCGCGAGGGGGAGCAAACCACAAAAAGGCCGTCCCAGTnCGGACTGTAGTCTGCAACCCGACTACACA
13    GAAGCTGGAATCGCTAGTAATCGCGAATCAGAATGTCGCGGTGAATACGTTCCCGGGTCTTGTACACA
14    CCGCCCGTCACACCATGGGAGTCGGAAATGCCCGAAGCCAGTGACCCAACCTTTATGAAGGAAGCCnG
15    TCCAAGGTTGAACCCGTTAACTGGGGnnTT
16
17    Ss3/4
18    GAGTTTGATCCTGGCTCAGGATGAACGCTGGCGGCGTGCCTAACACATGCAAGTCGAACGAGGT
19    ATATTGAATTGAAGTTTTCGGATGGATTTCAATGATACCGAGTGGCGGACGGGTGAGTAACGCGTGGG
20    TAACCTGCCTCATACAGGGGGATAACGGTTAGAAATGACTGCTAATACCGCATAAGCGCACA
21    GTACCGCATGGTACGGTGTGAAAAACTCCGGTGGTATGAGATGGACCCGCGTCTGATTAGCTAG
22    TTGGTGGGGTAACGGCCCACCAAGGCGACGATCAGTAGCCGACCTGAGAGGGTGACCGGCCACA
23    TTGGGACTGAGACACGGCCCAGACTCCTACGGGAGGCAGCAGTGGGGGATATTGCACAATGGAG
24    GAAACTCTGATGCAGCGACGCCGCGTGAGTGAAGAAGTATTTCGGTATGTAAAGCTCTATCAGC
25    AGGGAAGAAAATGACGGTACCTGACTAAGAAGCCCCGGCTAACTACGTGCCAGCAGCCGCGGTA
26    ATACGTAGGGGGCAAGCGTTATCCGGATTTACTGGGTGTAAAGGGAGCGTAGACGGCGACGCAA
27    GTCTGAAGTGAAATACCCGGGCTCAACCTGGGAACTGCTTTGGAAACTGTGTTGCTAGAGTGCT
28    GGAGAGGTAAGCGGAATTCCTAGTGTAGCGGTGAAATGCGTAGATATTAGGAAGAACACCAGTG
29    GCGAAGGCGGCTTACTGGACAGTAACTGACGTTGAGGCTCGAAAGCGTGGGGAGCAAACAGGAT
30    TAGATACCCTGGTAGTCCACGCCGTAAACGATGAATACTAGGTGTTGGTGAGCAAAGCTCATCG
31    GTGCCGCCGCAAACGCAATAAGTATTCCACCTGGGGAGTACGTTCGCAAGAATGAAACTCAAAG
32    GAATTGACGGGGACCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAAGCAACGCGAAGAAC
33    CTTACCAAATCTTGACATCCCTCTGAAAARYCCYTTAATCGGRTTCCTCCTTCGGGACAGAGGT
34    GACAGGTGGTGCATGGTTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGCAACGAG
35    CGCAACCCCTATTGTCAGTAGCCAGCAGGTGAAGCTGGGCACTCTGATGAGACTGCCAGGGATA
36    ACCTGGAGGAAGGTGGGGATGACGTCAAATCATCATGCCCCTTATGATTTGGGCTACACACGTG
37    CTACAATGGCGTAAACAAAGAGAAGCGAGCCTGCGAGGGGGAGCAAATCTCAAAAATAACGTCT
38    CAGTTCGGATTGTAGTCTGCAACTCGACTACATGAAGCTGGAATCGCTAGTAATCGCAGATCAG
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1     AATGCTGCGGTGAATACGTTCCCGGGTCTTGTACACACCGCCCGTCACACCATGGGAGTCGGAA

2     ATGCCCGAAGCCAGTGAACCCAATGCGAAAGCAGGGAGCTGTCGAAGGCAGGTCTGATAACTGGGGTG

3

4     Ss2/1 and Ssc/2

5     AGAGTTTGATCCTGGCTCAGGATGAACGCTGGCGGCGTGCTTAACACATGCAAGTCGAACGAAA

6     CACCTTATTTGATTTTCTTCGGAACTGAAGATTTGGTGATTGAGTGGCGGACGGGTGAGTAACG

7     CGTGGGTAACCTGCCCTGTACAGGGGGATAACAGTCAGAAATGACTGCTAATACCGCATAAGAC

8     CACAGCACCGCATGGTGCAGGGGTAAAAACTCCGGTGGTACAGGATGGACCCGCGTCTGATTAG

9     CTGGTTGGTGAGGTAACGGCTCACCAAGGCGACGATCAGTAGCCGGCTTGAGAGAGTGAACGGC

10    CACATTGGGACTGAGACACGGCCCAAACTCCTACGGGAGGCAGCAGTGGGGAATATTGCACAAT

11    GGGGGAAACCCTGATGCAGCGACGCCGCGTGAGTGAAGAAGTATCTCGGTATGTAAAGCTCTAT

12    CAGCAGGGAAGAAAATGACGGTACCTGACTAAGAAGCCCCGGCTAACTACGTGCCAGCAGCCGC

13    GGTAATACGTAGGGGGCAAGCGTTATCCGGAATTACTGGGTGTAAAGGGTGCGTAGGTGGTATG

14    GCAAGTCAGAAGTGAAAACCCAGGGCTTAACTCTGGGACTGCTTTTGAAACTGTCAGACTGGAG

15    TGCAGGAGAGGTAAGCGGAATTCCTAGTGTAGCGGTGAAATGCGTAGATATTAGGAGGAACATC

16    AGTGGCGAAGGCGGCTTACTGGACTGAAACTGACACTGAGGCACGAAAGCGTGGGGAGCAAACA

17    GGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGAATACTAGGTGTCGGGGCCGTAGAGGC

18    TTCGGTGCCGCAGCCAACGCAGTAAGTATTCCACCTGGGGAGTACGTTCGCAAGAATGAACTCA

19    AAGGAATTGACGGGGACCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAAGCAACGCGAAGA

20    ACCTTACCTGGTCTTGACATCCTTCTGACCGGTCCTTAACCGGACCTTTCCTTCGGGACAGGAG

21    TGACAGGTGGTGCATGGTTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGCAACGA

22    GCGCAACCCCTATCTTTAGTAGCCAGCATATAAGGTGGGCACTCTAGAGAGACTGCCAGGGATA

23    ACCTGGAGGAAGGTGGGGACGACGTCAAATCATCATGCCCCTTATGACCAGGGCTACACACGTG

24    CTACAATGGCGTAAACAGAGGGAAGCAGCCTCGTGAGAGTGAGCAAATCCCAAAAATAACGTCT

25    CAGTTCGGATTGTAGTCTGCAACTCGACTACATGAAGCTGGAATCGCTAGTAATCGCGAATCAG

26    AATGTCGCGGTGAATACGTTCCCGGGTCTTGTACACACCGCCCGTCACACCATGGGAGTCAGTA

27    ACGCCCGAAGTCAGTGACCCAACCGTAAGGAGGAGCTGCCGAAGCGGGACCGATAACTGGGGTG

28    AAGTCGTAACCAGGTAGCCGT

29

30    W = A or T

31    Y = T or C

32    R = G or A

33    N = Unknown

34
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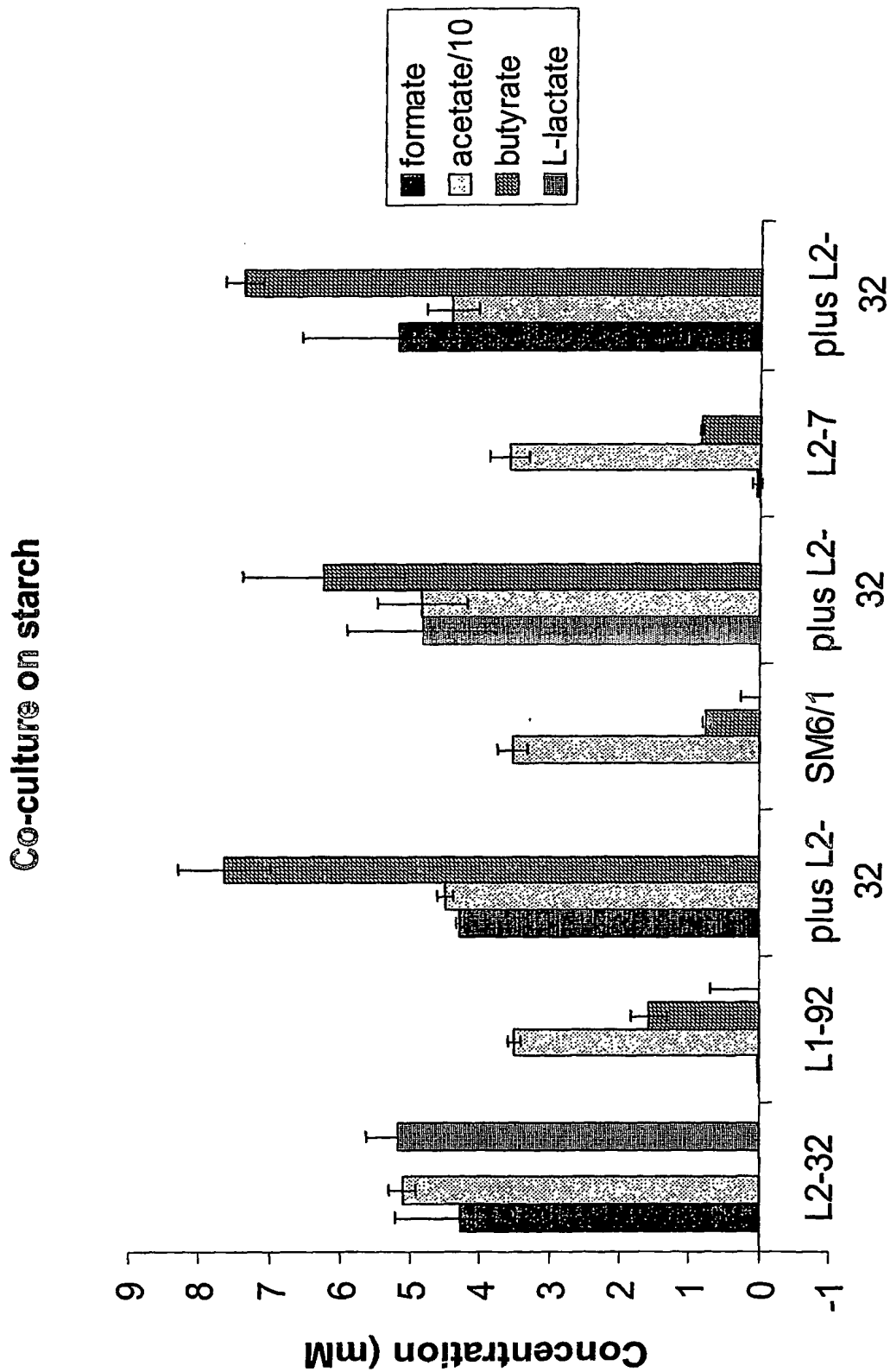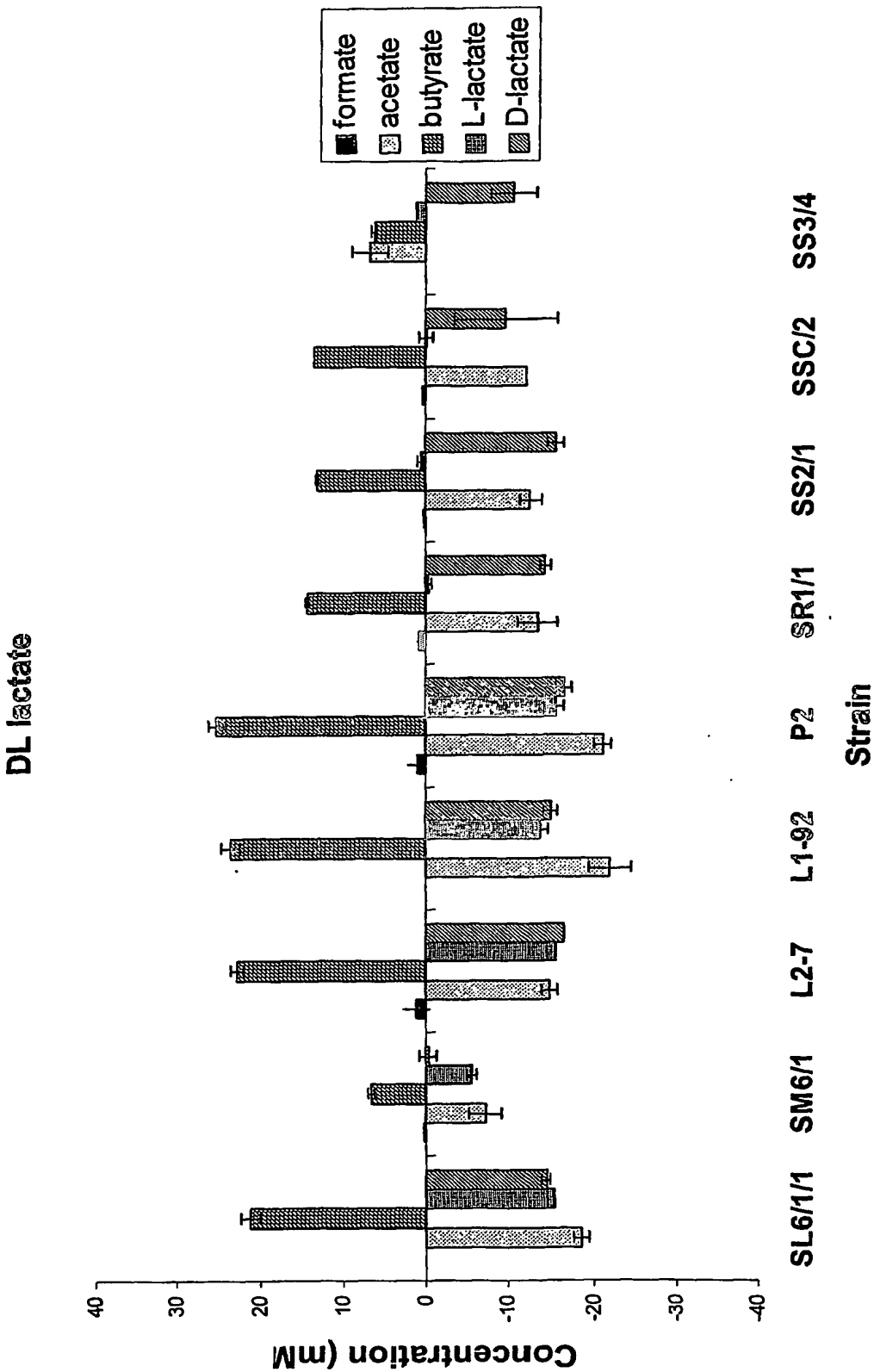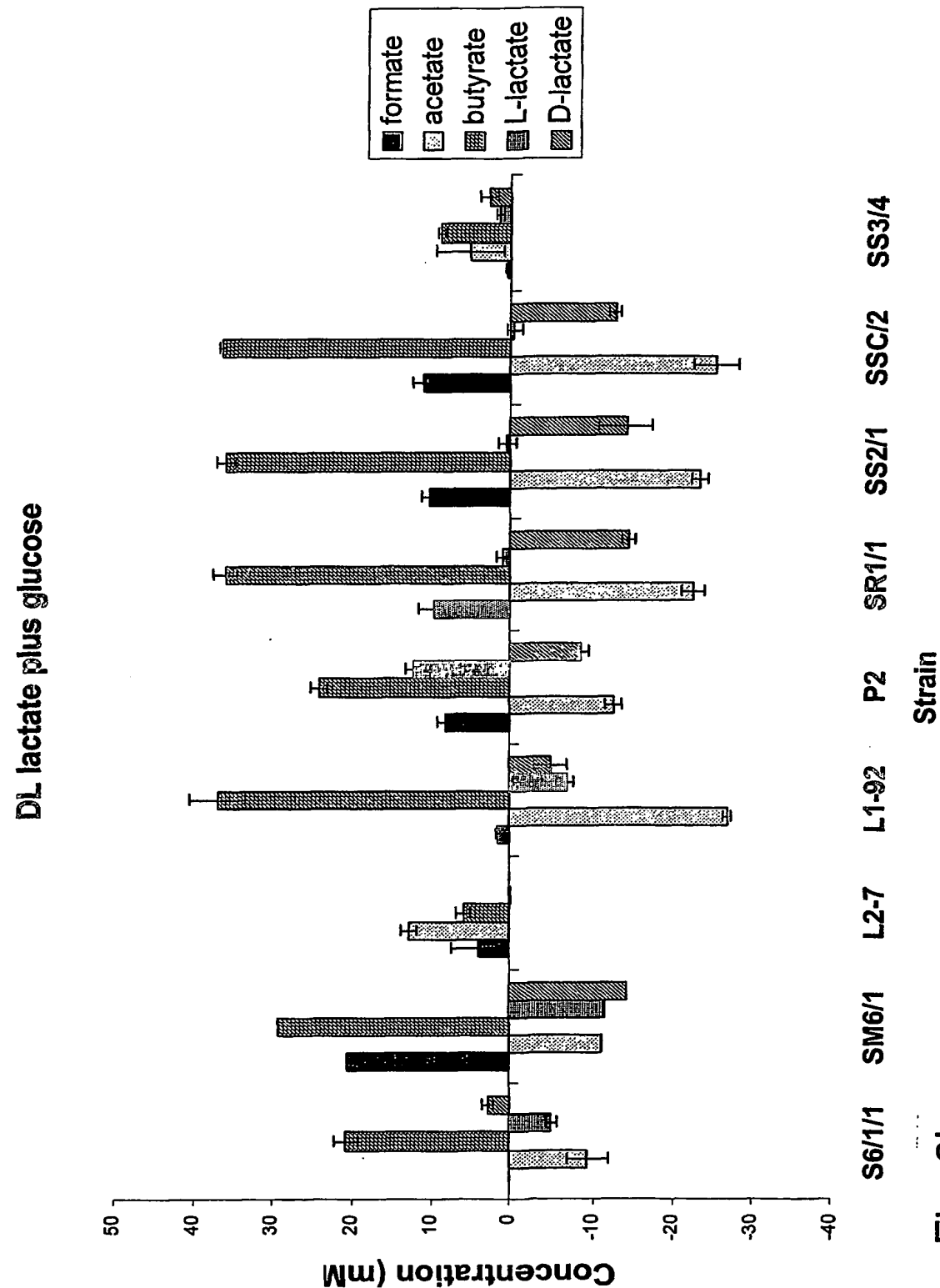
Fig. 2

DL lactate

Fig. 3a

Fig. 3b

Fig. 3c

Fig. 4

L2-7 (Glucose plus DL lactate)

Legend:
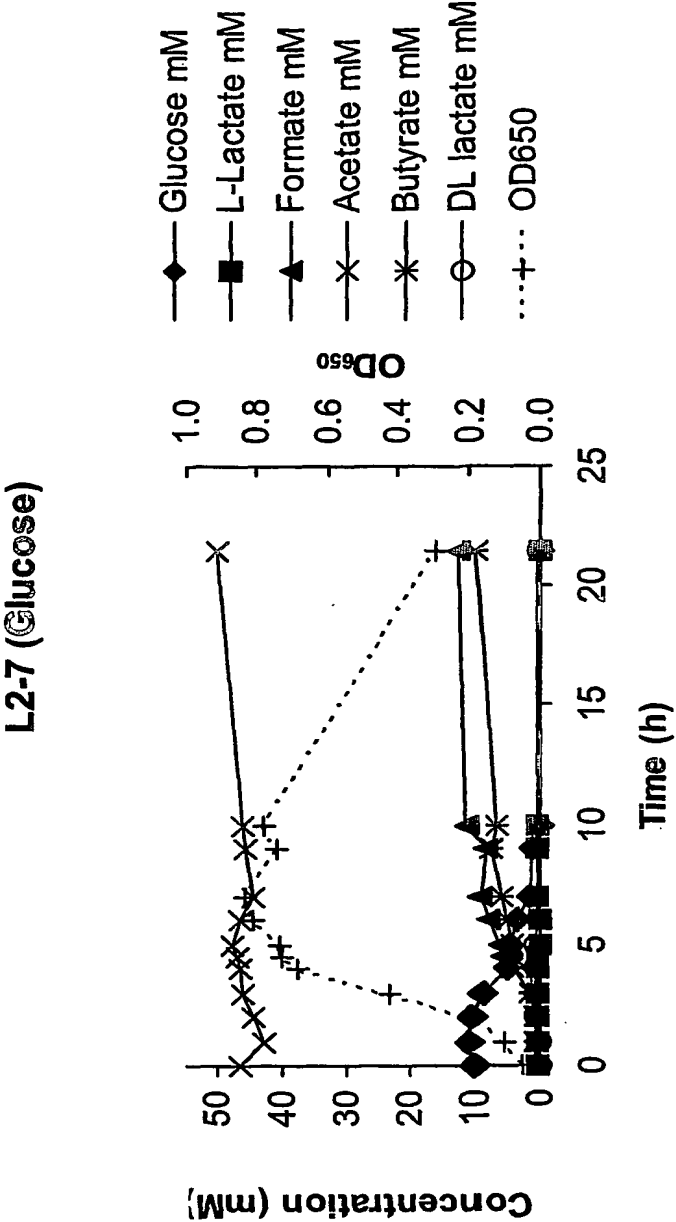- Glucose mM
- L-Lactate mM
- Formate mM
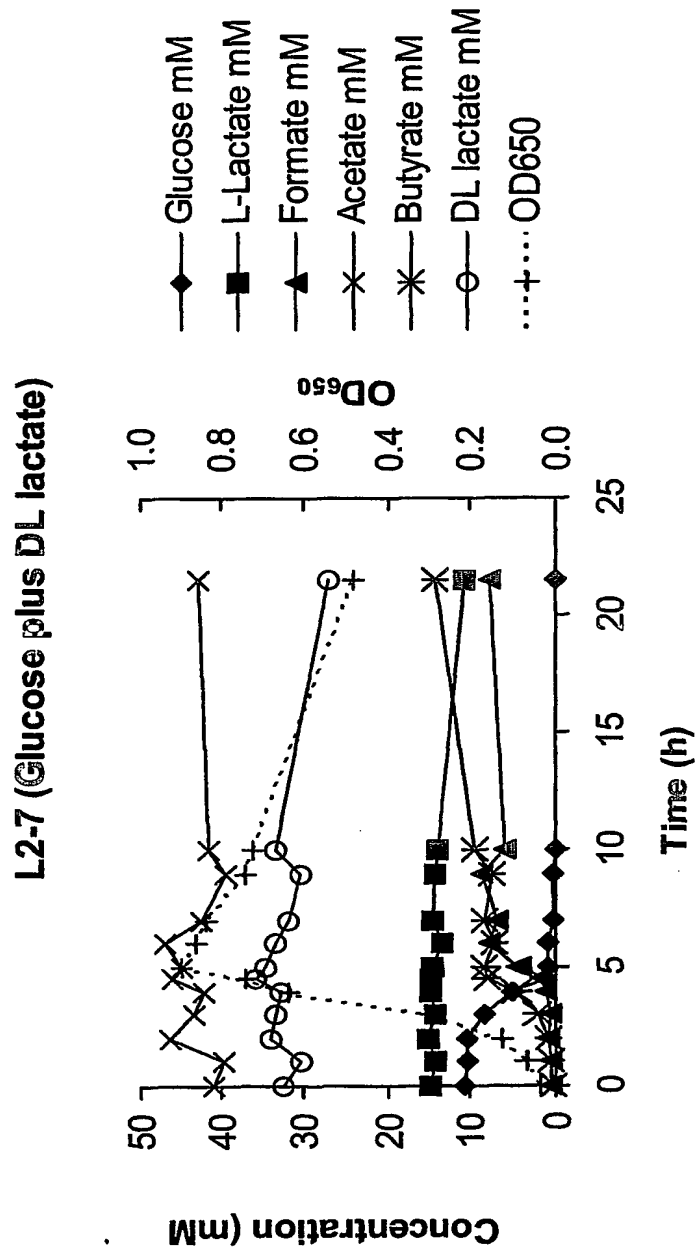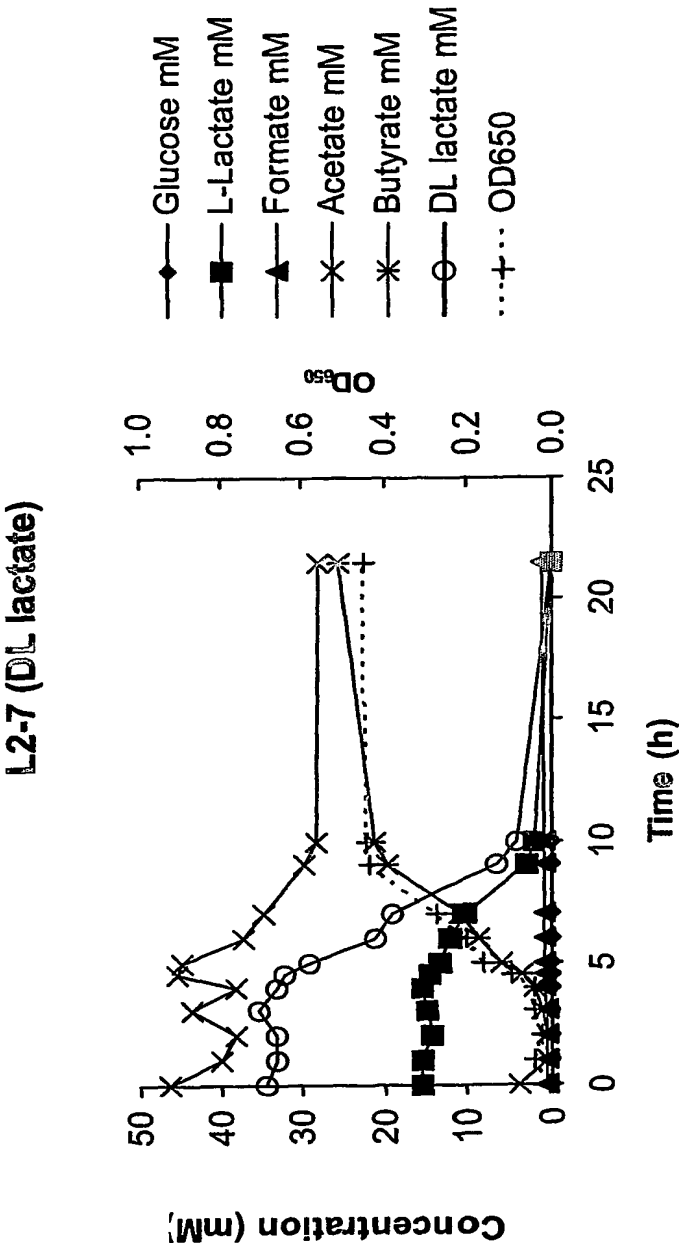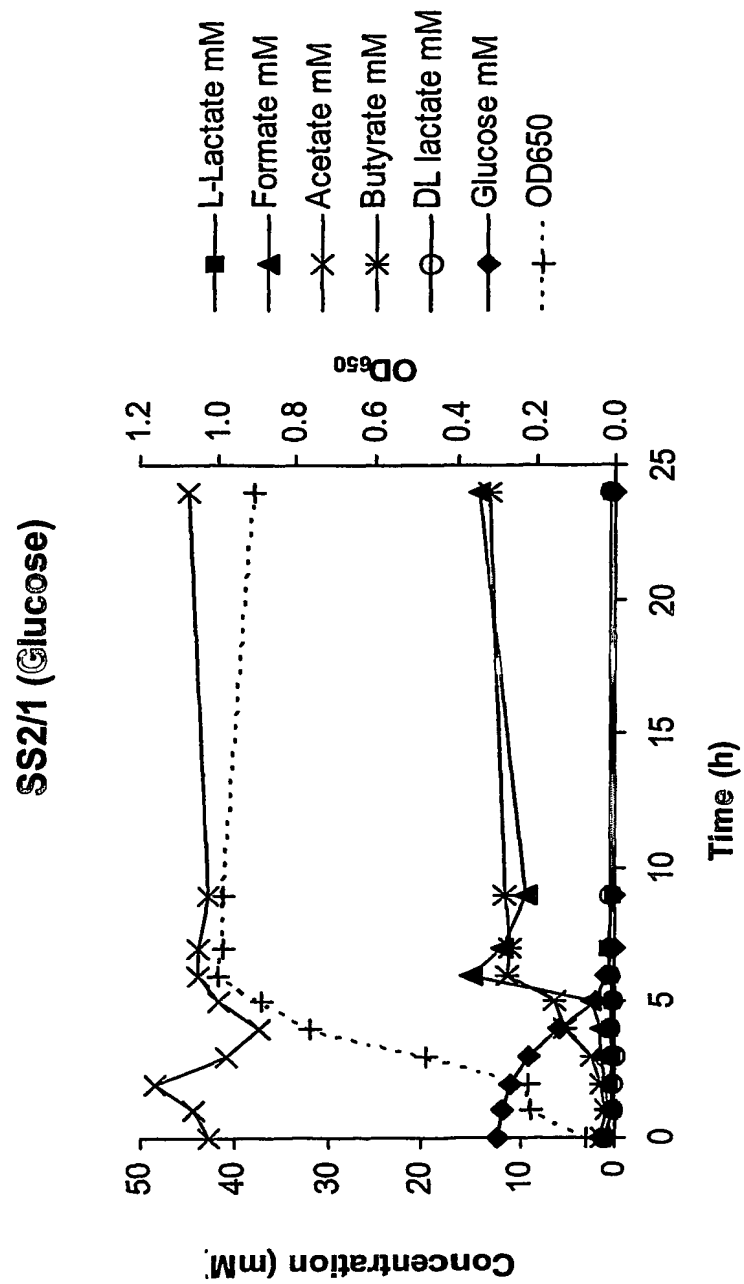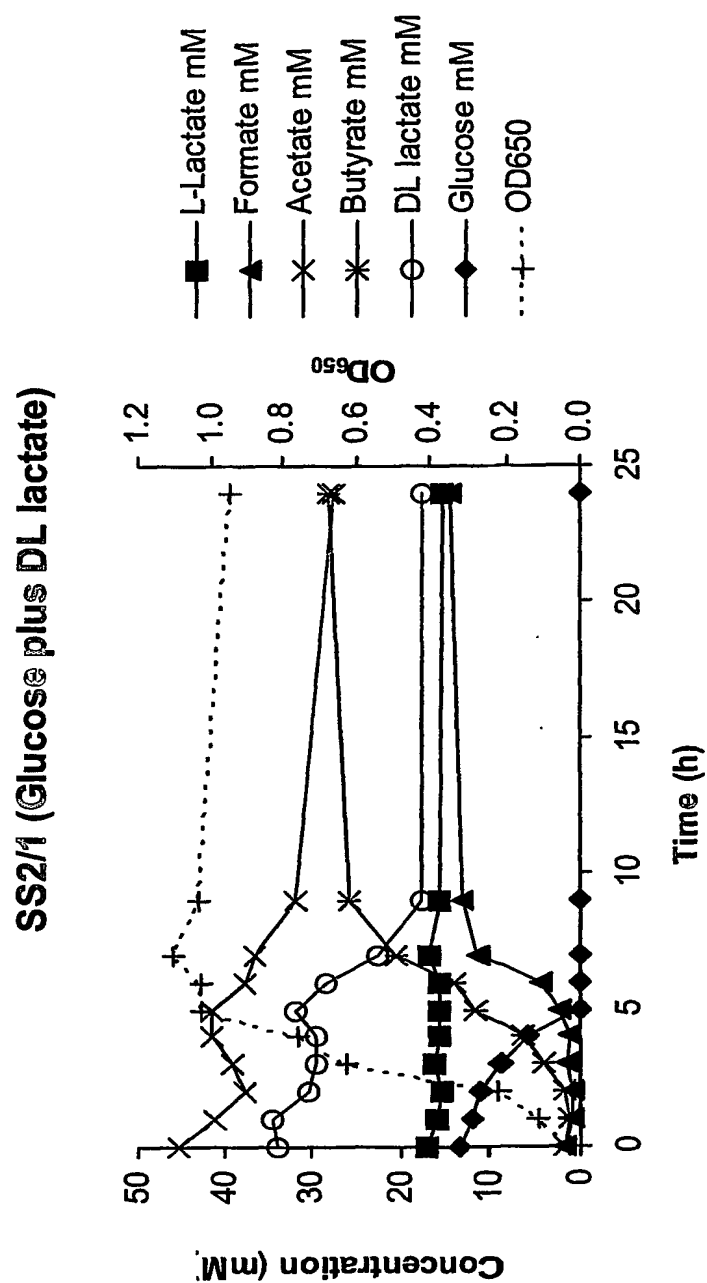- Acetate mM
- Butyrate mM
- DL lactate mM
- OD650

Fig. 4 continued

Fig. 4 continued

Fig. 5

Fig. 5 continued

SS2/1 (DL lactate)

Fig. 5 continued